STATE OF CALIFORNIA

CALIFORNIA ENERGY RESOURCES AND DEVELOPMENT COMMISSION

In the Matter of:	)	**Docket No. 01-AFC-24**
	)	
	)	
Palomar Energy, LLC	)	
Application for Certification of	)	
Palomar Energy Power Plant	)	
_____	)	

APPLICANT'S COMMENTS ON THE PRESIDING MEMBER'S PROPOSED DECISION

Dated: July 24, 2003

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I. Introduction

Palomar Energy, LLC ("Palomar Energy" or "Applicant") hereby submits its comments to the Presiding Member's Proposed Decision pursuant to the Committee's Notice of Committee Conference dated June 27, 2003.

II. Response to Three Air Quality Issues Identified in the Notice of Committee Conference.

In the Notice of Committee Conference, the Committee directed the parties to present comments on three issues related to air quality. Palomar Energy's comments in response to those directions are provided below.

Issue 1: Carbon Monoxide Emission Limits

"*The Air District imposed Condition of Certification AQ-32, which establishes emission limits for carbon monoxide (CO) at 4.0 parts per million by volume (ppmv). The record indicates that while the San Diego Air Basin is in attainment for CO, the ambient CO levels have been constant but not decreasing. We direct the parties to clarify why the project's CO emissions should not be limited to 2.0 ppmv, which is the state-of-the-art requirement for gas fired turbine-generators in California, particularly in the South Coast Air District.*"

As noted in the above comment, the San Diego Air Basin is in attainment with the CO ambient air quality standards, unlike the CO non-attainment designation of the South Coast Air Basin. A Best Available Control Technology (BACT) analysis performed in an attainment area is done on a case-by-case basis and takes many factors into consideration. The Final Determination of Compliance (FDOC) issued by the San Diego Air Pollution Control District (SDAPCD or District) for the Palomar Energy Project on December 6, 2002 includes an analysis of BACT for CO emissions from the project. The District's FDOC states that:

> "According to ARB Guidance for Power Plant Siting and Best Available Control Technology, September 1999, BACT for CO emissions from this equipment is 6.0 ppm based on a 3-hr averaging period, calculated at 15% oxygen. The applicant proposes to meet a limit of 4.0 ppm based on a 3-hr average, calculated at 15% oxygen. Because the ARB Guidance is being updated, other air districts, EPA and ARB Clearinghouses, have been consulted for more recent determinations. The Morro Bay power plant has a permit limit of 2.0 ppm with a tuning-in clause of 4.0 ppm for 12 months. Because the equipment has not yet been constructed this limit is not yet achieved in practice. The ANP Blackstone power plant in Massachusetts is equipped with an oxidation catalyst to control CO emissions. Even though the plant has been able to meet very low CO emission levels (close to 0 ppm) consistently during compliance testing, its CO permit limits are as follow: 3.0 ppm at 100% load, 4.0 ppm at 75% load and 20 ppm at 50% load. The applicant has proposed to meet 4.0 ppm at a 3-hour average at all times. This will be more stringent than the ANP Blackstone permit conditions. The proposal will be in line with the most recent determination of other California air districts and lower than the ARB September 1999 BACT Guidance. Therefore the District has determined the limit of 4.0 ppm calculated at 15% oxygen on a 3-hour basis to be BACT for CO." (Exhibit 52, p. 25)

We note that Commission regulations provide that the local air pollution officer shall provide a Determination of Compliance (DOC), which shall specify the conditions, including BACT, that are necessary for compliance. The BACT determination is made on a case-by-case basis and

may legitimately vary based on an air district's assessment of the project specific configuration and requirements. The Commission's regulations also provide that the Presiding Member's Proposed Decision shall include conditions based upon the DOC submitted by the local air pollution control district (20 Cal. Code Regs. Secs. 1744.5; 1752.3). Condition AQ-32 reflects a BACT emission limit of 4.0 ppmv averaged over 3 hours established by the San Diego APCD. Palomar Energy respectfully requests that this condition be retained as currently written. This limit is consistent with thirteen other recent 500 MW or greater combined cycle projects subject to the Commission's licensing process in which the DOCs have imposed CO conditions from 4 to 6 ppmv[1].

Palomar Energy recognizes there are some recent exceptions to this practice in the South Coast Air Quality Management District where CO is a problem (the SCAQMD is the only area in California that is designated as non-attainment of the CO ambient air quality standards). The recently licensed City of Burbank Magnolia and City of Vernon Marlburg projects were both based on SCAQMD DOC's with limits of 2.0 ppmv. However, these are both smaller facilities serving vertically integrated, municipal utility load, and therefore they will not of necessity be subjected to the load swings typically experienced by a 500 MW or larger merchant plant. Notably, the DOC for the Inland Empire Energy Center, also issued by the SCAQMD, requires a 3.0 ppmv CO limit, but does allow 4.0 ppmv when the plant's duct burners are operating (Inland Empire Energy Center, AFC-01-17, Final Staff Assessment, pp. 5.1-51, 5.1-60, Conditions AQSC-16, AQ-23, May 2003).

The 4.0 ppm limit, applicable at all times, established for the Palomar Energy Project is at least as stringent as any limit achieved in practice at a similar sized facility with duct burners. We note that in addition to being acceptable to Commission staff, neither the U. S. EPA nor the Air Resources Board commented on the CO emission limit contained in the Palomar Energy Preliminary DOC. In summary, the CO BACT determined by the District for the Palomar Energy Project is in compliance with all applicable laws, ordinances, regulations, and standards as required by all of the air quality agencies with oversight responsibility for the permitting of this project. We note further that the CO limit established by the District was not identified as an issue in the pre-filed or oral testimony of any party during evidentiary hearings.

The evidence of record also supports the conclusion that there are no significant impacts associated with CO emissions from the project. The air quality modeling analysis results presented in Air Quality Table 14 of the PMPD (p. 110) indicate that the worst-case impacts on ambient CO concentrations from the project operating at the 4.0 ppm limit are 30.1 $\mu g/m^3$ on a

[1] Licensed projects with a 6 ppm CO limit include Otay Mesa, Metcalf (may be lowered to 4 ppm), Contra Costa, Mountainview, El Segundo, and Potrero. Projects with a 4 ppm CO limit include East Altamont, Tesla, Cosumnes, Russell City, San Joaquin, Elk Hills and Inland Empire. Of the 4 ppm CO projects, only Russell City and Elk Hills are licensed.

one-hour average and 10.6 μg/m^3 on an eight-hour average. These impacts are less than 0.13 percent and 0.11 percent of the respective California ambient air quality standards. When these very small percentages are added to the maximum estimated background CO concentrations listed in the table, the worst-case predicted CO concentrations remain virtually unchanged at 52 percent and 61 percent of the one-hour and eight-hour ambient air quality standards, respectively. Therefore, the worst-case impacts to CO ambient air quality will not cause violations of the air quality standards and will be insignificant. For this reason, as well as the Commission's regulations suggesting that BACT related air quality conditions should normally rely on the District's determination, we believe the current evidentiary record supports retention of Condition AQ-32 as set forth in the PMPD.

Issue 2: Ammonia Emission Limits

"*Staff's proposed Condition AQ-SC11 provides that ammonia emissions (ammonia slip) from each gas-turbine exhaust stack following SCR shall not exceed 5.0 ppmvd (on a dry basis) except during transient hours, when a limitation of 10.0 ppmvd is permitted. Since the number of "transient hours" cannot be predicted, it is possible that transient hours could exceed non-transient hours. Considering that the amount of ammonia slip emitted by the project is a contested issue and in light of both Applicant's and Staff's assertion that estimated ammonia emissions are more conservative than expected during actual operation, we direct the parties to provide alternative language that would limit ammonia slip to 5 ppmv under all circumstances.*

This issue was also not raised by any party or the Committee during evidentiary hearings. Palomar Energy respectfully requests that the Committee reconsider its direction to provide alternative language that would limit ammonia slip to 5 ppmv under all circumstances. For the reasons set forth below, such a condition would put at risk Palomar Energy's ability to simultaneously meet the stringent NO_x limit to which we have agreed and a more stringent ammonia slip limit. We also believe that the current record shows that no significant impacts related to ammonia emissions would result if Condition AQ-SC11 were not changed. The contested issue regarding ammonia emissions during the evidentiary hearings was limited to the potential for emissions from the cooling tower rather than the gas-turbine exhaust stack. The evidence demonstrates that the Conditions of Certification as recommended by Commission staff and agreed to by Palomar Energy, including the allowance for a higher limit during transient periods, provide more than adequate mitigation for emissions of ammonia from the stack.

The language in condition AQ-SC11 reflects Palomar Energy's concern that it may not be possible to limit ammonia slip to 5 ppmv while also adequately controlling nitrogen oxides (NO_x) emissions limit during periods of significant load changes, i.e, "transient periods". Palomar Energy is confident that ammonia slip emissions can and will be limited to below 5 ppmv during periods of steady operations. However, changes in operating loads will produce

fluctuations in the "mass flow rate" (i.e., pounds per hour) of NO_x entering the SCR, which will require reactive changes in the ammonia injection rate to maintain adequate control of NO_x emissions. During such transient periods, the ammonia injection rate normally "overshoots" in association with control system actions that are essential to maintaining NO_x emissions in compliance. For example, when load is ramped down, the control system will decrease the ammonia injection rate only *after* the control system has first received data confirming that the NO_x mass flow rate has already begun to decrease, resulting in a period of excess ammonia injection (and therefore increased ammonia slip). Conversely, when load is ramped up, the control system will immediately increase the ammonia injection rate in order to "stay ahead" of the associated increase in NO_x mass flow. When load levels off at the end of the ramp up, the control system will trim back the ammonia injection rate only *after* the control system has first received data confirming that the NO_x mass flow rate and NO_x concentration are in compliance (again, resulting in increased ammonia slip). The lower the level to which NOx must be held, the greater the tendency to produce ammonia slip during load changes.

The ammonia slip condition is thus tied to the stringency of the NO_x limitation. The plant must be finely tuned to meet the NO_x limitation while minimizing ammonia slip. Some history of the development of the ammonia slip condition may be helpful to the Committee to further place this issue in context. Until the last year, most projects were proposed or licensed at 2.5 ppmv NO_x averaged over 1 hour, along with a 5 to10 ppmv ammonia slip requirement (see e.g., Russell City, Final Decision, Condition AQ-20 (b) and (e)). The air quality regulatory agencies have more recently begun to recommend or impose 2.0 ppmv NO_x averaged over 1 hour but they have also allowed a higher10 ppmv ammonia slip (see e.g., East Altamont Energy Center, RPMPD, Condition AQ-25 (b) and (e)). The San Diego APCD reviewed the issue in response to a Commission staff comment on the PDOC and retained the requirement of 10 ppmv ammonia in conjunction with the 2.0 ppmv NO_x limit averaged over 1 hour (Exhibit 52). Commission staff proposed to reduce this limit to 5 ppmv in the course of preparing the Final Staff Assessment.

Palomar Energy's concern regarding the difficulty of simultaneously meeting a very stringent NO_x limit simultaneously with a reduced ammonia slip limit was discussed with Commission staff at the February 7, 2003 workshop on air quality and visual resources following issuance of the FSA. Although Palomar Energy continues to maintain that impacts associated with a 10 ppmv ammonia slip limit are not significant, we agreed to accept a 5 ppmv ammonia slip limit during stable operations when NO_x emissions are constant and the ammonia injection rate can be tuned to a lower level. However, Commission staff recognized that ammonia slip emissions increase during transient periods and agreed to limit such increases to 10 ppmv during such transients, as provided in AQ-SC11. This agreement was reflected in the condition changes included in FSA Addendum 1 (March 7, 2003 – Exhibit 51).

It is anticipated that transient periods would be a minor fraction of the plant's operation. Transient periods would be primarily associated with twice daily ramping during times of the year when off-peak customer electrical demands are such that the plant's full output is not required (i.e., at the 6 a.m. transition from off-peak hours to on-peak hours, and again at the 10 p.m. transition from on-peak hours to off-peak hours).

Condition AQ-SC11 as currently proposed in the PMPD facilitates meeting the dual objectives of minimizing NO_x emissions as an ozone precursor and reducing ammonia slip to the extent feasible. The existing evidentiary record also demonstrates that ammonia slip emissions as conditioned in the PMPD will not result in significant environmental impacts. The PMPD correctly concludes that the proposed project will not cause significant risks to human health (PMPD, p. 152, 159). Ammonia emissions constitute a tiny fraction of the total acute and chronic risk, which was found to be insignificant, whether a 10 ppmv or 5 ppmv emission rate is assumed (Ex. 35, Balentine, pp. 6-8).

For the reasons stated above, we believe the wording of AQ-SC11 is necessary to enable Palomar Energy to meet the very low NO_x limit while minimizing ammonia slip emissions consistent with plant operating conditions. The existing record supports a conclusion that the provisions of this condition are necessary and reasonable, and will not result in a significant environmental impact. Therefore, Palomar Energy respectfully requests that the wording of condition AQ-SC11 as set forth in the PMPD also be retained.

Issue 3: Offset Liability and PM10 Mitigation Liability

"*Finally, the parties are directed to update Staff's Air Quality Table 16, which is replicated in the Air Quality section of the Decision, to reflect additional data provided during evidentiary hearings with respect to the project's revised NOx emissions cap of 104.3 tons per year (tpy). We also direct Staff to clarify the basis for determining that the project's unmitigated liability for PM10 is 108 tpy.*"

Palomar Energy has agreed to reduce the emissions cap on annual NO_x emissions from 105.0 to 104.3 tpy, as stated in the PMPD (p. 118). This reduction changes the "Offset Liability" entry in the second row of Air Quality Table 16 to 104.3 and the "SDAPCD required ERCs" in the second row to 125.2.

III. Comments On the Presiding Member's Proposed Decision.

Air Quality – Comment 1

Page 102, paragraph 1, line 1:

> The project site is located in the San Diego County Air Basin, within the jurisdiction of the SDAPCD. Air quality in the SDAPCD is in attainment with federal and state standards for SO_2, NO_2 and CO, and the federal PM_{10} standard, ~~and~~ is nonattainment for the state ~~and federal~~ ozone standards and the state PM_{10} standard, and at the close of Evidentiary Hearings, was nonattainment for the federal ozone standard. (Ex. 1, pp. 5.2-4 et seq.) A final rule was published in the Federal Register on June 26, 2003 that changed the designation for the federal 1-hour zone standard to attainment, effective July 28, 2003. (68 Federal Register 37976)

Page 122, paragraph 3:

> "3. The Air District is a nonattainment area for the state ~~and federal~~ 1-hour ozone and PM_{10} standards; the Air District is in attainment for federal 1-hour ozone and PM_{10} standards and state and federal NO_2, CO, SO_2 and lead standards. The District has not yet been classified regarding $PM_{2.5}$ standards."

The Committee may also wish to revise Air Quality Table 2, page 10, to reflect the redesignation by changing the federal classification for ozone from "Serious Nonattainment" to "Attainment."

The purpose of these revisions is to reflect the updated federal attainment status for ozone.

Air Quality – Comment 2

Page 110, paragraph 2, line 1:

> According to Staff, direct impacts of PM_{10} are significant since they would contribute to existing violations of the state 24-hour standard. (Ex. 50, p. 4.1-26, 4/28/03 RT, p. 245.). The Applicant disagrees with the presumption that the project's PM_{10} impacts are significant (Ex. 17, Section 2.1; Ex. 35, Head, page 13; RT 4/28/03, page 217).

The purpose of this revision is to reflect the Applicant's position along with that of Staff.

Air Quality – Comment 3 (typographical errors)

Page 101, footnote "a":

This footnote should be deleted because it is not referenced and is redundant with footnote 6 to Air Quality Table 1.

Page 104, paragraph 1, line 5:

> The U.S. EPA ~~San Diego~~ recently found the San Diego Air Basin has attained the one-hour NAAQS for ozone[14].

Page 109, paragraph 3, line 3:

> Maximum hourly emissions for the CTG and cooling tower were modeled for each pollutant to determine the short-term (one-hour, three-hour, eight-hour, and 24-hour) and long-term (annual) impacts for ~~load following~~ startup (cold and warm), shutdown, and normal operations with duct firing and without duct firing.

Page 109, footnote 18:

> [18] The drift eliminator is designed to control drift fraction to 0.0005 percent of circulating water flow. According to Applicant, drift emissions should be quantified on an assumption that 50 percent of total dissolved solids (TDS) in the cooling water eventually become airborne PM_{10} and a 50 percent fraction remain larger particles. (Ex. 1, Appendix E.3-2.) Staff was concerned about the accuracy of this assertion and therefore assumed that 100 percent of the TDS would be emitted to the ambient air as PM_{10} to establish worst case ~~offset~~ mitigation requirements. (Ex. 50, pp. 4.1- 19 and 4.1-20) The SDAPCD analyzed the project using a 100 percent estimate and determined that it would not alter anticipated impacts. (Ex. 22; Ex. 50, p. 4.1-19.) Condition of Certification AQ-SC9 establishes limits for cooling tower PM_{10} emissions.

Page 116, paragraph 1, line 8:

> Conditions of Certification AQ-SC8 and AQ-SC9 require the project owner to install a circulating water flow meter in the cooling tower to record daily flow, ~~showing~~ to measure the TDS, pH, and ammonia concentrations quarterly, and to limit annual cooling tower PM_{10} emissions to 5.7 tpy.

Page 117, paragraph 1, line 5:

> PM_{10} Emissions: 14 lb/hr ~~day~~ (with or without duct firing)
> SO_2 Emissions: natural gas with 0.75 grains of sulfur per 100 cubic feet

Page 118, Air Quality Table 16:

The entry under "Offset Liability" for "NOx, tpy with cap" should be revised from 105.0 to 104.3, and the entry under "SDAPCD required ERCs" in the same row should be revised from 126.0 to 125.2.

Page 120, paragraph 1, line 8:

> Based on this result, there is no evidence that the project will result in ~~a~~ significant ~~to~~ cumulative impacts. (Ex. 50, p. 4.1-41; Ex. 1, p. 5.2-44 et seq.)

Various footnotes (pages 126-144):

Footnotes and references to footnotes should be deleted from Conditions of Certification AQ-SC3 (pages 124 and 126), AQ-SC5 (pages 126 and 127), AQ-SC9 (pages 127 and 128), AQ-SC10 (pages 128 and 129), AQ-SC11 (page 129), AQ-17 (pages 133 and 134) and AQ-49 (page 144). Footnotes were provided in the Palomar Energy briefs to clearly identify the latest version of the condition, but such footnotes have been rightly deleted from all other topic areas except air quality in the PMPD.

Public Health – Comment 1

Page 150, paragraph 1, line 1:

> Applicant subsequently updated the health risk assessment to evaluate ammonia and additional toxic air contaminant emissions from the cooling tower as requested by the Air District and to reflect the reduction of ammonia slip from the HRSGs from 10 ppm to 5 ppm as ~~requested by the Air District~~ recommended by Staff. (Ex. 35, Balentine, p. 5.)

The purposes of this revision are to (i) note that toxic air contaminants additional to ammonia were included in the updated health risk assessment (HRA), (ii) note that the updated HRA was requested by the Air District, and (iii) note that the reduction in ammonia slip from 10 ppm to 5 ppm was recommended by Staff (and not requested by the Air District, which approved 10 ppm in the FDOC).

Public Health – Comment 2

Page 151, paragraph 1, line 1:

> Conditions of Certification **AQ-SC3** and **AQSC-4** in the Air Quality section of this Decision require the project owner to implement a Fugitive Dust Mitigation Plan to reduce the potential for adverse health effects from dust inhalation. Condition **AQ-SC3** also requires the project owner to use low-sulfur diesel fuel and to install soot filters on ~~stationary~~ diesel equipment to reduce particulate matter, carbon monoxide, and hydrocarbon emissions. Implementation of these mitigation measures will reduce any potential construction-related health effects to insignificant levels.[33]

The purpose of this revision is to conform the text with Condition AQ-SC3, which does not limit the application of soot filters to stationary equipment.

Public Health – Comment 3

Page 155, paragraph 3, line 1:

> In accordance with CTI recommendations and industry practice, the PEP will implement (in conformance with the requirements of Condition **PUBLIC HEALTH-1**) ~~the following~~ management strategies to minimize bacterial growth in cooling towers, such as:

The purpose of this revision is to reflect that additional and/or alternative management strategies that meet the requirements of Condition PUBLIC HEALTH-1 may be implemented as approved by the CPM.

Worker Safety and Fire Protection – Comment 1 (typographical error)

Page 165, item 8:

> The PEP will not result in cumulative impacts to the City of Escondido Fire Department's emergency response capabilities.

Visual Resources – Comment 1

Pages 297-8, Table 5, right hand column (with heading "Basis for Consistency"):

(Note that this statement appears three times, once on page 297 and twice on page 298)

> ~~It is staff's opinion that the only way to achieve consistency with this policy [or standard] is to incorporate architectural screening into the project design to hide or otherwise disguise the industrial/structural complexity of the project as proposed.~~ Effective implementation of all mitigation measures and staff's Condition of Certification **VIS-9** ~~(requiring structural screening)~~ would bring the proposed project into compliance with this requirement.

The purpose of this revision (same revision in the three locations noted above) is to conform Table 5 with Condition VIS-9. The current text in Table 5 is a holdover from staff's opinion prior to submittal on February 5, 2003 of Ex. 39 by the City of Escondido and the Applicant. This exhibit discusses the architectural requirements of the ERTC Specific Plan. Following submittal of Ex. 39, this matter was discussed at the February 7, 2003 workshop on air quality and visual resource issues, where it was concluded that the ERTC Specific Plan neither requires nor prohibits the use of architectural screening to achieve its objectives. Condition VIS-9 was subsequently revised to its current form in order to accurately reflect the requirements of the Specific Plan (Ex. 51, page 13).

IV. Conclusion

For the reasons set forth above, Palomar Energy respectfully requests that the Committee retain Condition AQ-32 regarding CO and Condition AQSC-11 regarding ammonia slip and

make the changes set forth above in Errata to the PMPD presented to the full Commission for adoption as part of the Final Decision for the Palomar Energy project.

Dated: July 24, 2003

Respectfully Submitted,

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